

## Claims

What is claimed is:

1. A gas turbine plant comprises:

a high-temperature gas-cooled reactor which warms a coolant by thermal energy being obtained by nuclear fission of clad fission products in coated-particle fuels;

a first gas turbine that is rotated by the coolant being warmed by the high-temperature gas-cooled reactor and shares a same shaft with a compressor compressing the coolant;

a second gas turbine that is rotated by the coolant being discharged from the first gas turbine and shares a same shaft with a generator performing electrical power generation operation; and

a bypass pathway that has the second gas turbine bypassed to the coolant;

wherein, during the rated load operation, the flow volume of the coolant flowing through the bypass pathway is controlled so as to make the rotating speed of the first gas turbine fall within a range of a predetermined rotating speed.

2. A gas turbine plant as described in Claim 1:

wherein, the bypass pathway is provided with an orifice to control a flow volume of the coolant flowing through the bypass pathway.

3. A gas turbine plant as described in Claim 1:

wherein, the bypass pathway is provided with bypass valves to control a flow volume of the coolant flowing through the bypass pathway.

4. A gas turbine plant as described in any of Claim 1 through Claim 3:

wherein, "n" ("n" is an integer number being more than one (1).) units of compressors are provided and at a same time, the first gas turbines being connected to "n" shafts and sharing same shafts with the "n" units of compressors, respectively, are provided.